

**ABSOLUTE QUANTIFICATION OF PROTEINS AND MODIFIED FORMS
THEREOF BY MULTISTAGE MASS SPECTROMETRY**

Abstract

The invention provides reagents, kits and methods for detecting and/or quantifying proteins in complex mixtures, such as a cell lysate. The methods can be used in high throughput assays to profile cellular proteomes. In one aspect, the invention provides a peptide internal standard labeled with a stable isotope and corresponding in amino acid sequence to the amino acid sequence of a subsequence of a target polypeptide. In another aspect, the peptide internal standard is labeled at a modified amino acid residue and is used to determine the presence of, and/or quantitate the amount of a particular modified form of a protein.

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